

Connecticut Department of Transportation
Preliminary Cost Estimating Guidelines - METRIC
January 2004

NOTE: WHEN PRELIMINARY COST ESTIMATES ARE PREPARED, THE ENGINEER MUST TAKE INTO ACCOUNT THE TYPE OF PROJECT, ITS COMPLEXITY, GEOGRAPHICAL LOCATION, AND OTHER SPECIAL CONSIDERATIONS THAT MAY APPLY. QUESTIONS ABOUT THESE GUIDELINES SHOULD BE DIRECTED TO THE DEPARTMENT'S COST ESTIMATING UNIT, ATTENTION MR. ROBERT NEVILLE, 860-594-3245

I. CONTRACT ITEMS

A. Roadway Items

<u>Earth Exc.</u>	<500 C.M.	\$20 - \$50/C.M.
	500-2,500 C.M.	\$12 - \$22/C.M.
	2,500 – 5,000 C.M.	\$10 - \$18/C.M.
	>5,000 C.M.	\$8 - \$14/C.M.
<u>Rock Exc.</u>	<500 C.M.	\$50 - \$100/C.M.
	500-2,500 C.M.	\$30 - \$60/C.M.
	2,500 – 5,000 C.M.	\$30 - \$60/C.M.
	>5,000 C.M.	\$20 - \$40/C.M.
<u>Borrow</u>	<500 C.M.	\$20 - \$40/C.M.
	500-5,000 C.M.	\$10 - \$20/C.M.
	>5,000 C.M.	\$8 - \$14/C.M.
<u>Trench Exc.</u>	0 - 3 M. Deep	\$15 - \$25/C.M.
	0 - 6 M. Deep	\$20 - \$35/C.M.
<u>Rock in Trench Exc.</u>		\$50 - \$150/C.M.
<u>Drainage</u>		
	300 mm R.C.P.	\$105/M.
	375 mm R.C.P.	\$115/M.
	600 mm R.C.P.	\$160/M.
	1200 mm R.C.P.	\$280/M.
	Simple Catch Basins	\$1,400 Ea.
	Double Catch Basins	\$1,600 to \$2,000 Ea.
	Complex Basins ("CM-2")	\$4,500 to \$6,000 Ea.
	Sedimentation Chambers: (Vortechs, etc.)	
	3 M x 1.2 M	\$15,000 Ea.
	4 M x 2 M	\$24,000 Ea.
	5.5 M x 3.7 M	\$45,000 Ea.

Prepared by:
Connecticut Department of Transportation
Design Services Division
Cost Estimating Unit

Revised: 02/04/04

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A. Roadway Items (cont.)

Bedding Material

<100 C.M.	\$40/C.M.
500 - 1,000 C.M.	\$30/C.M.
>1,000 C.M.	\$25/C.M.

Milling of Bituminous Concrete 0 - 100 mm \$4/M²

Bituminous Concrete (Class 1 & Class 4)

<100 M. Ton	\$85/M. Ton
100 – 1,500 M. Ton	\$60/M. Ton
1,500 – 5,000 M. Ton	\$58/M. Ton
>5,000 M. Ton	\$42 - \$55/M. Ton
Superpave Mix	Increase prices by 5%

Subbase

<500 C.M.	\$25 - \$40/C.M.
500 – 2,000 C.M.	\$28/C.M.
>2,000 C.M.	\$22/C.M.

Curbing

Temporary P.C.B.C.	\$60/M.
B.C.L.C.	\$8 - \$20/M.
Concrete Curbing	\$55 - \$85/M.
Precast Concrete Barrier Curb (380 mm x 815 mm)	\$135/M.
Precast Concrete Barrier Curb (600 mm x 810 mm)	\$160/M.
F-Shape P.C.B. Curb (530 mm x 1145 mm)	\$260/M.
F-Shape P.C.B. Curb (755 mm x 1145 mm)	\$295/M.

Guide Railing

Metal Beam Rail (Type R-B 350)	\$40 - \$55/M. (Add \$2.50/M. for 10 Ga.)
Merritt Parkway Guiderail	
<100 M.	\$180/M.
100 M – 2,500 M.	\$160/M.
>2,500 M.	\$135/M.

Concrete Sidewalk \$70/M²

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A. Roadway Items (cont.)

Furnishing & Placing Topsoil

<1,000 M ²	\$7.50/M ²
1,000 – 5,000 M ²	\$6.00/M ²
> 5,000 M ²	\$4.50/M ²

Turf Establishment

< 1,000 M ²	\$3.00/M ²
1,000 – 5,000 M ²	\$1.40/M ²
> 5,000 M ²	\$1.00/M ²

<u>Sodding</u>	\$12/M ²
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Traffic Signals (Consultation with Traffic Engineering recommended)

New-	\$70,000 - \$100,000 per intersection
Minor Modification	\$20,000 per intersection
Major Modification	\$40,000 per intersection

Trafficmen

State Police Officer	\$ 50/hour
Town (City) Police Officer	\$ 50/hour
Uniformed Flagger	\$ 30/hour

Noise Barrier Walls - Timber

Roadway - Use	\$165/M ²
Structure - Use	\$215/M ²

Roadway Lighting

Expressway	\$175/M
Ramps	\$125/M

Contaminated Soil & Water – Handling, Removal and Treatment

Obtain a construction cost estimate from the Environmental Compliance Division

Railroad Protection

Metro North & Amtrak	
Flagman:	\$750 per day
Night work (Flagman & Groundman):	\$2,000 per night
All other Railroads	
Flagman:	\$300 - \$600 per day

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B. Structure Items

Bridges

Deck	\$800 - \$1,050/M ²
Superstructure	\$1,100 - \$1,350/M ²
New Structure	\$2,250/Square Meter of Deck Area

Structure Exc.

<100 C.M.	\$75/C.M.
100 - 1,000 C.M.	35/C.M.
>1,000 C.M.	24/C.M.

Structural Steel

Favorable site conditions	\$3.10/KG
Less than favorable conditions	Up to \$5.50/KG
(Limited access, height restrictions, etc.)	

<u>Prestressed Beams</u>	\$850/Meter
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Removal of Superstructure

Bridge over Roadway	\$270/M ²
Bridge over Water or Rail	\$540/M ²

Box Culverts

2400 mm x 1200 mm	\$2,200/M.
3600 mm x 1800 mm	\$2,950/M.

Retaining Walls (Concrete)

(Note: Square footage estimate includes the subsurface area)	
Modular Walls and Mechanically Stabilized Earth	\$550 - \$600/M ²
Cast-in-Place Concrete	\$650 - \$750/M ²

<u>Embankment Walls</u>	\$300/M ²
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Structural Concrete

Class A

< 50 C.M.	\$600 - \$900/C.M.
> 50 C.M.	\$400 - \$650/C.M.

Class F

< 50 C.M.	\$800 - \$1,100/C.M.
> 50 C.M.	\$650 - \$900/C.M.

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B. Structure Items (cont.)

Deformed Steel Bars

<1,000 KG.	\$2.25/KG.
1,000 - 7,500 KG.	\$2.00/KG.
>7,500 KG.	\$1.65/KG.

Deformed Steel Bars - Epoxy Coated

Add \$0.50/ KG. to above costs.

Removal of Existing Masonry

\$140/ CM.

Junction Boxes \$12,500 ea.

Temporary Sheet Piling Reasonable Range \$140 - 250/S.M.

Cofferdam and Dewatering \$400 - \$1,000/M.

Deck Patching

Partial Depth Patch	\$2,200/C.M.
Full Depth Patch	\$2,600/C.M.

Cast-in-Place Concrete Piles \$180/M.

Steel Piles

Furnishing	\$0.80/KG.
Driving	\$30/M.
Splicing	\$400 Ea.
Point Reinforcement	\$160 Ea.

Prestressed Deck Units 1200 mm x 800 mm \$750/M.

Lead Health and Protection

<u>Value of Structure Items</u>	<u>Lead Health & Safety Estimated Cost</u>
<\$1,000,000	\$25,000
\$1,000,000 - \$5,000,000	\$50,000
\$5,000,000 - \$10,000,000	\$100,000
>\$10,000,000	\$200,000

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C. Minor Items

? < 30% design completion - Add 20% of (A) Roadway, and (B) Structure Items

Note: If Structure Items are determined on a square foot basis, the 20% is applied only to Roadway Items.

? 30 – 65% design completion - Add 10% of (A) Roadway, and (B) Structure Items

? > 65% design completion – No additive required since the estimate is based on actual quantity take-offs

D. Lump Sum Items

Clearing & Grubbing	2.0%
M & P of Traffic	3.0%
Mobilization	7.5%
Construction Staking	1.0%

Percentages are applied to the *sum of (A) Roadway + (B) Structures + (C) Minor Items*.

II. INCIDENTALS AND CONTINGENCIES

<u>Project Value</u>	<u>Incidentals</u>	<u>Contingencies</u>
Less than \$1 million	21%	7%
\$1 – 5 million	15%	7%
\$5 – 10 million	12%	5%
Over \$10 million	7%	5%

Percentages are applied to the sum of (A) Roadway Items + (B) Structure Items + (C) Minor Items + (D) Lump Sum Items

III. UTILITIES

Prior to a project's initiation, and at any time thereafter, members of the Department's Utility Section will assist in establishing or updating the preliminary cost estimate for any anticipated utility impacts.

IV. CONSTRUCTION COST

Total Construction Cost is the sum of the following:

- ROADWAY ITEMS
- STRUCTURE ITEMS
- MINOR ITEMS

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- INCIDENTALS TO CONSTRUCTION
- CONTINGENCIES
- UTILITIES

V. ESTIMATE UPDATES

All construction cost estimates should be updated according to the following:

- Semi-annually
- At major milestones in design (PD, SF, FD)
- When the scope of the project changes significantly

VI. COST ADJUSTMENT CRITERIA

Construction cost estimates should be adjusted to the scheduled year of construction using the criteria listed below:

- ? Construction Cost less than \$10 million – increase by 3% annually
- ? Construction Cost of \$10 million or greater – increase by 2.75% annually